

5     **VIDEO COMPRESSION USING ADAPTIVE SELECTION OF GROUPS OF  
FRAMES, ADAPTIVE BIT ALLOCATION, AND ADAPTIVE  
REPLENISHMENT**

10                     **Abstract of the Disclosure**

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15             The present invention provides video signal compression that  
efficiently groups pictures in a video stream into variably-sized groups of pictures  
(GOPs), thereby providing lower achievable output signal bit rates and higher output  
signal quality. The video signal compression maximizes the output signal quality by  
appropriately allocating bits among individual pictures and GOPs in the output signal.  
The video signal compression of the present invention also applies compression  
methods that reduce noise in the output signal, by utilizing a macroblock-based  
tunable conditional replenishment technique. The conditional replenishment  
20     technique exploits the similarities among images in the variably-sized GOPs to further  
minimize output bit rate and maximize the output signal quality. An analysis-by-  
synthesis method is also provided to select a best asynchronous sampling method  
among various generated candidate output streams.

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